ELEMENTARY STEREOLOGY FOR QUANTITATIVE METALLOGRAPHY

PROF. SANKARAN
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INTENDED AUDIENCE : Anyone who is interested in the quantification of microstructures

INDUSTRIES APPLICABLE TO : All materials related industries and Pathologists, Bio technologists

COURSE OUTLINE :
Quantitative metallography or stereology is concerned with the measurement of microstructural features such as grain size, and the size and spatial distribution of second phase particles from the observations made on 2-D sections through optical, scanning and transmission electron microscopy. In all cases a small sample section or thin slice of material is observed in order to derive the microstructural characteristic of a bulk material. Stereology is therefore concerned with geometrical probability.

ABOUT INSTRUCTOR :

Prof. S. Sankaran is presently Professor in the department of Metallurgical and Materials Engineering, IIT Madras. His research interests are deformation processing of materials, mechanical behavior of materials and electron microscopy. He is also presently the faculty in-charge of central electron microscopy of IIT Madras.

Prof. Sandeep Sangal is Professor at Department of Materials Science and Engineering, IIT Kanpur and his research interests are Structure-Property Correlations, Microstructural Characterization, Stereology, Image Processing, Development of Web-Based Educational Aids

COURSE PLAN :

Week 1 : Method of Stereology ,Geometrical Probability - I ,Geometrical Probability II

Week 2 : Probability Distributions ,Basic Stereological Parameters

Week 3 : Counting of grains and particles ,Description of Polycrystalline Microstructures derived measures

Week 4 : Size distribution of particles ,Other applications of the Disector